III. REMARKS

The actually novel and inventive feature in the present application is the low reluctance sheet that is used to reduce radiated interference, and especially the ways of placing that sheet in the structure of a portable communications device. The only reference that the Examiner has cited against this feature is Akiba.

The feature of Akiba that the Examiner considers as pertinent is not any of the metallic layers that take part in forming the "closed loop circuit path" of Akiba. The Examiner cites column 6, lines 38-46, where Akiba mentions that:

"…in the vicinity of the interlayer connection portion and the like in which the electromagnetic radiation noise is easy to leak out, a sheet-like wave absorber (made of the ferromagnetic substance, the magnetic substance or the combination thereof) is arranged (not shown) so that the electromagnetic radiation noise is effectively absorbed by the wave absorber. Likewise, such a wave absorber may also be arranged in the vicinity of the interlayer connection portion in the circuit board 1."

Thus, in view of Akiba, it is reasonable to say that it is known from the prior art to use a sheet of absorbing material. Ferromagnetism is usually associated with high permeability, which is essentially synonymous with low reluctance, so Akiba's reference to ferromagnetic substances is essentially the same as the property of low reluctance in the present invention. Thus

using a sheet-like absorber made of low reluctance material is known from Akiba.

However, Akiba only suggests using such an absorber "in the vicinity of the interlayer connection portion". In other words, Akiba admits that his "closed loop circuit path" will not be completely closed but may contain gaps. Akiba's absorbers are separate "guardian soldiers" stationed next to gaps in some otherwise continuous, three-dimensional conductive shield.

According to the present invention, the low reluctance sheet covers a significant area of a printed circuit board. Its location is not dictated by any gaps in any three-dimensional conductive shield, but by the mutual locations of the radiator part of an antenna and the components that might pick up high-frequency interference.

The cited references of Johnson and Levi describe antennas. An antenna is a component that must be allowed to radiate. Keeping the radiation emitted by an antenna from propagating to its surroundings would be synonymous to making the antenna useless. Quite to the contrary, the cited reference of Akiba describes signal paths that carry high-frequency signals, and suggests enforcing as tight a radiation shielding as possible. In the most optimal case, none of the high-frequency interference that a high-frequency signal path inherently radiates could be observed outside the shielding in Akiba.

A person skilled in the art would not consider applying the shielding principles of Akiba to the antenna structures of Johnson and Levi, because surrounding the antenna of Johnson or Levi with the continuous conductive shield of Akiba would render

the antenna useless. It is noted that where modifying a reference would make it useless for its intended purpose, the modification is improper, see In re Gordon, 221 USPQ 1125, 1127. It is respectfully submitted that the Examiner expresses a basic misunderstanding on the second last line of page 2 in the Advisory Action: the purpose of the present invention is not to reduce electromagnetic radiation noise ***from*** a circuit board as the Examiner says, but to reduce electromagnetic radiation noise from a nearby antenna ***to*** the components of a circuit board.

Even if the references are somehow combined, one must consider what would result from combining the cited references. Since the pertinent teaching of Levi and Johnson can be concisely said to be the existence of a planar antenna, we do not consider the issue of air gaps or other details of minor importance.

Levi and Johnson both disclose a planar antenna. It is well known in the art that a planar antenna may be located on or close to the same circuit board with some other components.

Akiba discloses building a shield against high-frequency electromagnetic interference by introducing a continuous, three-dimensional conductive circuit path and equipping possible gaps therein with wave absorber sheets made of low reluctance material.

Since Akiba considers exclusively cases where the source of the high-frequency radiation is inside the continuous, three-dimensional conductive circuit path, a straightforward combination of Levi and/or Johnson with Akiba would result in a structure where the antenna was surrounded with a continuous,

three-dimensional conductive circuit path, and possible gaps therein would be equipped with wave absorber sheets made of low reluctance material. As pointed out above, such a solution would not work because the antenna could neither transmit nor receive any signals.

In order to help define over the prior art, the independent claims having been amended to recite "… which third area includes a number of components on a surface of the printed wire board…". This feature is supported by the drawings and is totally missing from the references even if they are combined.

In summary, the references cannot be combined since it would destroy the intended function of the main reference, and even if the references are somehow combined, the result is not the invention defined by the amended claims.

For all of the foregoing reasons, it is respectfully submitted that all of the claims now present in the application are clearly novel and patentable over the prior art of record, and are in proper form for allowance. Accordingly, favorable reconsideration and allowance is respectfully requested. Should any unresolved issues remain, the Examiner is invited to call Applicants' attorney at the telephone number indicated below.

A check in the amount of $910.00 is enclosed for a one-month extension of time and the Request for Continued Examination(RCE). The Commissioner is hereby authorized to charge payment for any fees associated with this communication or credit any over payment to Deposit Account No. 16-1350.

Respectfully submitted,

Henry I. Steckler
Reg. No. 24,139

Oct. 24, 2005
Date

Perman & Green, LLP
425 Post Road
Fairfield, CT 06824
(203) 259-1800
Customer No.: 2512

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